

INTRODUCTION

HOW TO USE THE LPL FRAMEWORK

WHEN TO USE THE LPL FRAMEWORK

APPLYING THE LPL FRAMEWORK TO NATIONAL FORESTS IN UTAH

ANALYTIC FOUNDATION FOR LPL FRAMEWORK

Tribal Linkages

Use Linkages

- Basic Categories of Use Linkages

- Factors That Define Use Linkages

Interest Linkages

- General Public Linkages

- Special Interests or “Motivated Interest” Linkages

- Cultural, Heritage and Historic Interest Linkages

- Contributor Linkages

- Science Linkages

- Economic Linkages

Neighboring Land Linkages

- Land Inholding Linkages

- Adjacent Land Linkages

- “Nearby” Land Linkages

Decision-Making Linkages

- Collaboration Linkages

- Coordination Linkages

- Consultation Linkages

- Compliance Linkages

DATA SOURCES AND RESEARCH NEEDS

INTRODUCTION

This section of the Social-Economic Assessment for the forest plan revisions of the Dixie, Fishlake, and Manti-La Sal National Forests discusses approaches for understanding the human dimensions of public lands management that go beyond simple descriptive economic and demographic characteristics of the region. We refer to these as linkages to the land because the purpose of this section is to identify specifically how people use and interact with the land so that the social data are relevant and useful for developing and evaluating planning alternatives and monitoring future management actions.

The first several sections explain how and when to use the LPL Framework and the process of applying the framework to National Forests in Utah. The main section presents the analytic foundation for the LPL Framework, which deserves some detailed explanation since this framework represents a new approach to social assessment for public lands, which was developed expressly for the Dixie, Fishlake, and Manti-La Sal

National Forests. The final section discusses data sources and research needs for use in the “Linkages to Public Land” Framework.

The Linkages to Public Land (LPL) is a framework for data gathering and analysis that has been designed to increase the usefulness of social information for public and agency decision making about public lands. *The LPL is essentially a planning and assessment tool* designed to identify, define, and categorize the various types of linkages that people have to public lands and to find and use information on people in those linkages. The main purpose of the LPL Framework is to have a general but comprehensive framework for thinking about the elements of the social environment most directly linked to public lands and, thus, most relevant to public land decision making. In this particular project, the framework is being developed to provide a social assessment tool that can be used during forest plan revision for three National Forests located in Utah (Dixie, Fishlake, and Manti-La Sal), but it could be applied to any public lands in the United States.

Existing human linkages to National Forest System (NFS) lands are the legacy of past decisions regarding ownership, allocation, and use of the land and resources that are now contained in the National Forests. Through the many treaties, statutes, rules, and policies governing management of NFS land and resources, multiple *uses* have been authorized and various people (*users*) have been given rights and responsibilities to utilize NFS lands and resources and to be involved in decision-making about forest management. Authorization to use forest resources may be contained in a treaty, patent, contract, lease, grant, memorandum of understanding, cooperative agreement, permit, or unregulated but authorized public use. Public responsibilities are also varied, and range from conforming to the activity opportunities the Forest Service allows, to abiding by specific standards or management actions that must be met in order to extract resources, build structures, and the like. All these forms of permission constitute agreements whereby the United States Forest Service (USFS) or another governmental entity exercises oversight of legally authorized uses of NFS land on behalf of and in trust for the American people.

Thus, there are myriad forms of social linkages to National Forest System lands, ranging from general opportunities to enjoy the natural environment to legal agreements with specific users that convey certain rights and responsibilities on the part of the public *and* the Forest Service. For example, grazing permits convey to permittees the right to graze cattle on a specific allotment, and responsibilities to protect the resource by limiting the number of animals and building structures to protect riparian areas. Grazing permits convey to the Forest Service the responsibility to provide access and monitor the permit requirements. In this report the terms “opportunities,” “privileges,” “permits,” “rights,” and “responsibilities” are used to refer to the many formal and informal linkages between the public and National Forest System lands.

As with all social-economic assessments, the scope of inquiry needs to be bounded or focused in some way. The LPL Framework focuses the analysis on direct linkages to NFS land, which then extend outside the National Forests into a wider geographical range but through a narrower set of connections than is normally done in social-economic assessments. In most social-economic assessments, the analysis is focused by drawing a geographic boundary outside the forests (i.e., to encompass surrounding counties, communities, and tribes) on the assumption that public lands have a specific and identifiable “zone of influence.” Such boundaries are arbitrarily drawn since forests actually have nested

zones (scales) of influence that often are defined by the particular issues or resources of concern, and even by international markets that extend far beyond the immediate vicinity of the forests. Consequently, such analyses often miss important connections that people outside the more immediate geographic area may have to NFS lands. The assumption is made that people outside the immediate geographic area will identify themselves through the public involvement process, but this generally comes late in the planning effort, is not representative, does not allow for more involvement in collaborative processes, and leads to frustration among people who may have been more involved in planning efforts.

By identifying the full range of linkages to the forests, the LPL Framework provides the means to conduct an assessment of the baseline social environment for the Dixie, Fishlake, and Manti-La Sal National Forests. This baseline social environment pertains to the forests themselves and not to the general social environment of the areas in which the forests are located, as is generally done in social assessments. By focusing on the linkages that people have to NFS lands, this approach clearly conceptualizes people as “part of” forest ecosystems and not “apart from” those systems. Thus, *the LPL Framework helps to define the social environment of the forests (not the social environment of nearby communities).*

The main value of the LPL Framework is to help the public as well as USFS planners and managers recognize and differentiate the various types of linkages that people have to the National Forests. Understanding these various linkages is important for enabling people to see their own linkages to public land in relationship to other people’s linkages to public lands. Such an understanding can help people assess the compatibilities and conflicts between various linkages, and between all human linkages and the capabilities of the land to sustain those linkages. The LPL Framework can help the public to understand the inherently difficult task that the USFS confronts in trying to manage the multiple linkages that people have to the land. It can also help USFS planners conduct a systematic and objective analysis of the social environment required by NEPA to complement the public involvement and collaboration processes which focus on the most vocal segments of the population.

In addition, the type of assessment developed through the LPL Framework is important for enabling the USFS to meet its two main strategic goals of promoting ecosystem health to sustain the National Forests and providing multiple benefits to people (*USDA Forest Service Strategic Plan, 2000 Revision*). It addresses many of the recommendations contained in the Committee of Scientists Report (1999) concerning the need to supplement traditional social-economic assessments with other types of assessments that are more directly relevant to the information needs of USFS planners and managers.

HOW TO USE THE LPL FRAMEWORK

The LPL Framework can be used at various levels of specificity, depending upon decision-making needs, enabling public land planners and managers to obtain more complete social-economic information as needed. At a general level, it helps to identify and address the types of linkages that people have to the land and how these linkages might be affected by various management strategies. At a more specific level, this approach can guide more geographically focused and issue-driven social analyses. Application of the LPL Framework can help the USFS find more detailed information on people/entities that may be in the various types of linkages or linked to particular geographic areas. It also can help the USFS obtain reasonable sampling frames for conducting survey work with people/entities in those

A2

linkages. Steps 1 and 2 are the primary purpose of this report, while steps 3 and 4 must be completed as part of the planning process and in coordination with the public involvement effort.

As a social-economic assessment tool, the LPL Framework can be used to guide public land planners and managers through the following four analysis steps.

Step 1 – Inventory Relevant Human Linkages to Public Land. First, the tool starts with an analytic foundation that differentiates, at a general level, the various types of linkages that people have to public lands. Using this analytic foundation, the staff of public land management agencies can inventory which linkage categories are relevant to the particular lands that they manage. They can also determine how specific legal agreements and permitting procedures might stipulate or shape the nature of the relationships that people have with the land. Since linkages are defined by the nature of the relationships people have with the land, some very basic characteristics of how and why people interact with the land in the ways that they do can be inferred.

Step 2 – Identify Data on People/Entities in the Linkages. The second step of the analysis is to identify where to find data on people or entities that are in those linkages. This step helps planners to find appropriate data sources for analyzing aspects of the social environment most directly linked to public land. Some of these data sources, such as agency permit data, generally are not viewed as social science data and are, consequently, underutilized in social-economic assessments.

Step 3 – Profile People/Entities in the Linkages. The third step in the analysis is to use the data sources identified in Step 2 to profile the people/entities who are in the various types of linkages. Information available in those data sources often can be used to provide general but useful characterizations of people in the various types of linkages (e.g., geographic place of residence, areas of the forest that are used, basic demographic information). However, since there are apt to be numerous human linkages in any unit of public land (e.g., a forest), this profiling activity should be conducted in response to specific information needs that are related to planning activities, projects, proposals, or policies that are issue-driven and place-based.

Step 4 – Analyze the Concerns and Opportunities to Address the Concerns of People/Entities in Various Linkages. The fourth step in the analysis is to conduct more focused, primary research to analyze the content of people's concerns related to particular issues and to particular geographic areas on public land. Databases on people in the various linkages found in Step 2 can be used as sampling frames for drawing representative samples of people with whom to conduct survey or interview research or to invite to participate in collaborative learning processes. Primary research oftentimes is the most useful or the only way to obtain information on the content of people's concerns. As with Step 3, this analysis step needs to be responsive to specific information needs so that data gathering efforts can be properly and clearly focused and framed in order to provide information that will be useful for agency decision making.

A2

WHEN TO USE THE LPL FRAMEWORK

The LPL Framework can be used in a variety of situations in which assessment, analysis, or discussion of the social-economic environment of public lands is needed. It is an assessment

tool that provides a process for thinking about, organizing, and gathering information on the social environment of public lands. As such, this tool and the thought process embodied in it can be applied in a variety of situations in a step-wise fashion that uses each step of the framework when and where it is most appropriate. However, the process *must be tailored to relatively specific decisions, issues, resources or geographic region*. It can not be applied in the abstract for an entire forest planning process, because there would be thousands of linkages, and the results would not be useful for specific planning applications or alternatives or the process of issue identification.

First, the LPL Framework can be used in social-economic assessments and in impact and opportunity analyses. Its primary benefit as a social-economic assessment tool is to provide an inventory of human linkages to the land. In this way, it provides social information that is comparable to the inventories that public land managers generally conduct on biophysical resources. The primary benefit of using the LPL Framework in impact and opportunity analyses is that it can help to evaluate the range of impacts or opportunities that people/entities who are in the different types of linkages are likely to encounter. The type of impacts and opportunities will vary because the nature of relationships to the land varies. Also, the LPL Framework can be helpful in analyzing cumulative impacts and opportunities, since the framework encourages people to think comprehensively about all the linkages that people have to the land.

Second, the LPL Framework can be used in planning and devising management alternatives to identify and analyze relevant aspects of the social environment that need to be taken into account. For instance, in devising a management direction for a particular geographic area, the USFS staff should inventory the relevant human linkages to that area so that all of the various linkages can be considered in planning and management decisions. Then, as needed and where possible, USFS staff might want to identify sources of information on people in those linkages, use those sources of information to profile people who are linked to that particular geographic area, and conduct some issue-specific survey research or public involvement work targeted at some or all of those people depending on data availability and needs.

Third, the LPL Framework can be used as a discussion tool in public involvement or collaborative learning sessions, where one goal of these sessions may be to help people see themselves in relation to other people as well as in relation to public land. Identifying the many different ways in which people are linked to public land and having discussions about what those linkages mean might help the public to prioritize particular linkages when and where it becomes necessary, or might help the public to better understand the rationale for certain agency decisions. Furthermore, seeing and understanding their linkages to the land can help people to develop, exercise, and build stewardship capacity at individual, community, and larger public levels.

Fourth, the LPL Framework can help the USFS to devise an approach for monitoring linkages to forest land over time. Its benefit in this regard would come primarily from evaluating the usefulness of information sources on linkages for providing monitoring information, modifying or revising some of the information gathered and contained in these information sources, and deciding how to more effectively utilize these information sources for monitoring purposes. For one example, USFS permit data can be very useful for monitoring people's uses of forest land, but those data must be kept, tracked, and analyzed in

ways that will be useful for monitoring change over time. Oftentimes, simple changes can be made to permit forms in order to obtain information that will identify where users are from and which parts of the forest they use. This can be tremendously helpful to the USFS if for no other reason than to be able to identify who is accessing the forests and for what purposes. Furthermore, an evaluation of information sources on the various linkages can help to identify where the USFS already has high, medium, or low monitoring potential, given the data it already collects. This evaluation can help the agency to think about where and how to efficiently allocate monitoring efforts in the future.

APPLYING THE LPL FRAMEWORK TO NATIONAL FORESTS IN UTAH

One of the main tasks undertaken as part of this social-economic assessment was to design and develop the LPL Framework, which provides the process for conducting social-economic assessments and impact analyses on public lands. The “Linkages to Public Land Framework” is presented in detail in the next section, where various types of linkages that people have to public land are identified, defined, and categorized.

This assessment package also presents progress made in applying the LPL Framework to the Dixie, Fishlake, and Manti-La Sal National Forests and in going through the steps outlined above to identify and use data sources. In terms of *Step 1*, identification of which linkages are relevant to the three forests along with more detailed information on tribal linkages, economic and demographic linkages, and planning linkages are contained in this document.

For *Step 2*, an initial inventory of data sources on people or entities in the various linkages has been done. Forest as well as non-forest sources of information were searched. Social data sources include two basic types: “raw data” that directly identify people/entities who are linked to NFS lands (e.g., USFS permit data); and, “summary data” which contain compiled information on social and economic linkages to the forests (e.g., national recreation surveys or data on volume and worth of timber harvests, grazing, and recreation visitor days). Some summary social and economic data provide indications of direct and indirect linkages to NFS land, such as census and economic information compiled and analyzed at a community or county level, even though specific and direct linkages are hard to definitively demonstrate using these data sources.

For *Step 3*, some initial profiling has been done of tribes and counties surrounding the three national forests and is presented in this assessment package. This profiling has relied primarily upon summarized and readily available data.

Step 4 (analyzing the content of people’s concerns) requires more focused, primary research and was beyond the scope of this phase of the assessment effort. To be relevant to agency decision making, this step should be done in a strategic and collaborative way and needs to be focused on particular issues and geographic areas. Such data gathering efforts have great potential for providing information on how and why people are linked to public lands in the ways that they are, and what this means for the issues of sustainability and stewardship.

A2

ANALYTIC FOUNDATION FOR LPL FRAMEWORK

This section provides the analytic framework that identifies, defines, and categories the various types of linkages that people have to public land. Application of this framework to a particular unit of public land constitutes Step 1 of the Linkages to Public Land Framework.

In this framework, *linkages to the land are defined by the nature of the relationship*. The linkages are not defined simply by the entities that may be in those linkages; particular individuals or entities can have more than one type of linkage to the land. Neither is the linkages defined simply by the resources to which people are linked (e.g. water, range, timber, minerals, wildlife, fish, or recreation). The categorization scheme is based upon the recognition that there are fundamental distinctions between the different ways in which people are linked to NFS land. Understanding these distinctions is important for helping the American public and the USFS evaluate various management alternatives and determine how best to provide multiple benefits to people within the capability of sustainable forest ecosystems.

Five basic categories of linkages have been identified: 1) Tribal Linkages; 2) Use Linkages; 3) Interest Linkages; 4) Neighboring Land Linkages; and, 5) Decision-Making Linkages.

Tribal Linkages

These linkages refer to relationships and special connections that have developed over generations between American Indians and the lands that they inhabited and the resources that they used. Besides their historic precedence, these linkages are unique in that they recognize treaty rights that groups of American Indians people have to use certain resources on the public lands. Thus, these linkages are distinguished by the fact that they define both *the use* and *the users*.

Tribal linkages to NFS lands and resources are defined, in part, through treaty rights as well as through a variety of federally protected uses reserved for American Indians. Tribes have a government-to-government relationship with federal and state governments, as defined and interpreted by the Constitution and Congress. The USFS (and all federal agencies) have the responsibility to protect these rights as well as to consult with tribes concerning their land management activities.

The Committee of Scientists' Report, for example, summarizes the key protected values and uses of American Indian tribes that must be incorporated in Forest planning. Treaty rights include rights to hunt, fish, trap, and gather on national forest lands. Regarding the federal government's trust responsibility, the Committee of Scientists' report says: "The entire federal government . . . is responsible for carrying out the government's trust responsibilities, which include recognition of treaty-based and other legal rights of American Indians on lands outside and inside of reservation boundaries." Also, "the Forest Service is obligated to recognize and to avoid adverse effects upon tribal rights to use national forest lands [and]... The Forest Service must consider the effects of its actions on rights that may be exercised outside of national forest boundaries." Regarding the role of sovereignty and government-to-government relationships, the Forest Service and other federal agencies must work together to develop "cooperative relationships with tribal governments." These relationships require ongoing personal, interactive contacts rather than just "sending a letter to the tribal council." The Committee of Scientists argued that beyond meeting legal requirements, the tribes and the Forest Service should consider these opportunities to learn from each other.

Finally, the Committee of Scientists also pointed out that there are many other Federal

laws that require recognition of tribal “prerogatives,” such as the Antiquities Act, Archaeological Resources Protection Act, American Indian Religious Freedom Act (as amended), the Religious Freedom Restoration Act, the Native American Graves Protection and Repatriation Act, the National Historic Preservation Act, and Executive Order No. 13007 on Indian Sacred Sites.

Use Linkages

Use linkages refer to the ways in which people actually use the National Forests. These linkages imply a physical connection to public land. People’s uses of the land are often based upon legal agreements that define how they are allowed to use it. These agreements structure people’s relationships or linkages to the land.

The obligations of the USFS to recognize and account for legally established and authorized uses of forest lands is part of the framework within which forest planning takes place. Use linkages are important because they constitute the “existing deals” that are in place which give people privileges or permission to use NFS land and also define their corresponding responsibilities. This does not mean that existing uses cannot be changed as conditions warrant, since this may be necessary for the USFS to engage in the adaptive management necessary to ensure healthy and sustainable ecosystems as well as to provide multiple benefits to people. But, depending upon the nature of the use, there may be social impacts, legal implications, or stewardship opportunities that the USFS needs or wants to take into account. In addition, recognition of these uses as part of the social baseline is required as part of the planning process and important for explaining the rationale for forest decisions.

Basic Categories of Use Linkages

Two important distinctions help to identify different types of uses. First, there is a difference between authorized and unauthorized uses of public land (i.e., between legal and illegal uses). Second, there is a distinction between permitted and open-access uses (i.e., uses where people need to obtain permits and uses where people do not need to obtain permits). Here the term “permit” is used to refer to a variety of documents that contain written permission to use public lands or the resources located on those public lands. These documents include titles, deeds, patents, contracts, leases, grants, and agreements, as well as USFS “permits.”

In what follows below, we explain the significance of the distinctions between authorized and unauthorized uses and between permitted and open-access uses for describing different types of use linkages and identifying the people in those linkages.

Various uses of National Forests are authorized under federal laws. These authorizations distinguish legal from illegal uses of the land and provide management direction. These statutes, such as the Multiple Use and Sustain Yield Act of 1960 or the National Forest Management Act of 1976, specify which uses are allowed to occur in the National Forest System as a whole, and enable the USFS to allow people to engage in those uses.

Under this statutory guidance, the USFS then has the task of deciding which uses are most appropriate in various areas of particular forests. It tries to ensure that various uses are suitable in specific locations where the land is capable of sustaining them and that those uses are compatible with other uses. The USFS manages authorized uses through planning activities and permitting procedures and prevents unauthorized uses through education and law enforcement.

Three basic categories of uses are:

Open-Access Uses. Since National Forests are public lands, many uses are open-access and people are allowed to enter the forests and engage in those uses. Open-access uses generally involve visitation and recreation where people access the forests for their own enjoyment.

Permitted Uses. Over time, many uses of public land have come under a permit system, whereby individual forest *users* are given specific permission to engage in authorized uses of the land, subject to certain conditions specified in the written documents that convey this permission. Permits have been implemented in instances where resources are scarce or where resource degradation has occurred and the USFS needed a mechanism to limit access and more effectively manage peoples' use of those resources.

The early establishment of permitting procedures is documented in the 1905 "Use Book" of the U. S. Department of Agriculture Forest Service. The Use Book is a set of regulations and instructions on the use of the National Forest Reserves originally sent as a draft to the Secretary of the U. S. Department of Agriculture, James Wilson, by Gifford Pinchot, Forester. Among its exhibits are samples of permits of the day dealing with forest responsibilities and products. From its beginnings as a pocket-sized, 142-page document, the Forest Service manual has grown to encompass multiple volumes, in both print and electronic formats.

[See: [www.lib.duke.edu/forest/usfscoll/publications/1905 Use Book/use_intro.htm](http://www.lib.duke.edu/forest/usfscoll/publications/1905%20Use%20Book/use_intro.htm) (last contacted 9/21/03) or www.lib.duke.edu/forest/usfscoll/publications/ (last contacted 11/25/03) and navigate to the PDF document.]

Over time, uses of the forests changed, the USFS gave use permission to various people, laws increased the scope of the USFS' responsibilities, and the rules and regulations reflected these expansions. Forms in use on the forest today, and the regulations and directions for using the forms, are accompanied by authority sections with careful references to the laws under which each use is authorized, controlled or permitted. Where there is no permit, there is little direct means of controlling uses.

Illegal Uses. There are three different types of illegal uses of public land. The first type of illegal use is one which is not authorized by law or is expressly forbidden. The second type of illegal use is when a use requires a permit that the user has failed to obtain. The third type of illegal use is one which is appropriately permitted but the permit holder has violated some of the conditions of that permit.

Factors That Define Use Linkages

The conceptual foundation for understanding use linkages comes from legal concepts related to the use of common property. We identify five basic privileges that people can be given to use public land and resources: access, extraction, management, exclusion, and transferability. These privileges are not exclusive of each other, and some of the privileges actually depend upon other privileges being in place. For examples, a person cannot harvest a resource if they do not also have the authorization to access it, and a person generally cannot engage in management activities if they are not able to also access and manipulate the resource, and so forth. Personnel of the USFS often exercise a large degree of discretion in allocating various legally authorized privileges to individual users.

The five basic privileges define uses at a broad and strategic scale, but additional factors can help to define more specifically the nature of people's linkages to the land. All of these

A2

factors may need to be taken into consideration in making decisions about uses on a more site-specific or issue-specific basis.

Basic Use Privileges

The five basic privileges by which people can use public land and resources are described here.

1. *Access:* user is allowed to enter a defined physical area, use the land and resources in place, and enjoy non-subtractive benefits (e.g. one person's use does not subtract from another person's use).

NFS land remains in the ownership of the public and the public generally has the right to access that land. Many uses of NFS land only allow users this basic privilege of access. Some examples of uses that only have access privileges are: rights-of-way, motorized recreation, non-motorized recreation, spiritual uses, in-holding access, many forms of recreation (e.g., camping, accessing wilderness areas), outfitter camps, access to range cabins and mining camps/buildings, and prospecting (non-surface disturbing).

2. *Extraction:* user is allowed to harvest resources from the forests or engage in some resource manipulation activities.

Some users of NFS lands are allowed to access the land as well as to extract or harvest some resources. The nature of the right or privilege to extract resources can vary, however, in that some users may extract resources subject to capture (e.g., hunting and fishing), some users may extract resources under permit (firewood gathering), some users may extract a resource on an ongoing basis subject to its availability (e.g., water rights), and some users may extract resources at will due to ownership but subject to reasonable government oversight (e.g., on private land such as an inholding). Some examples of uses where extraction is permitted are: hunting (permitted by state), fishing (permitted by state), seed gathering, firewood gathering, Christmas tree harvests, or mineral exploration.

3. *Management:* user is allowed or even required to make resource improvements and engage in management actions that affect the land.

Some users are allowed to access the land, extract resources, and exercise some management responsibilities over portions of the land or resources. Thus, management privileges reflect links to the land and at least some specific resource protection or management actions on the part of the users, which requires a higher level of involvement, oversight, or cooperation with agency staff. The privilege of management distinguishes instances in which users are allowed or required to make resource improvements or engage in reclamation activities. Some examples of uses that involve management privileges are: grazing, experimental sections of forests, timber harvesting, outfitting and guiding, utility and communication sites, mining claims, and mineral leases.

4. *Exclusion of others:* user is allowed to determine which other people will have access privileges and how those privileges can be obtained, and is given some management authority over other people.

In addition to access, extraction, and management privileges, some users are allowed to exclude other people from using certain lands or resources. People can be given exclusive use of an area for their own benefit, or they can be given the authority to oversee and manage other people's use of an area (and, thereby, they can exclude some people). Some examples of uses that involve the ability to exclude other people are: ski resorts, various types of concessions, recreation residences, exclusive use roads, organization camps, resorts, mining operations, oil and gas drilling and production, hydropower sites, reservoirs sites, and water diversions.

5. *Transferability*: user is allowed to sell or lease some or all of their other privileges or the permit itself.

Some users of NFS lands are allowed to sell or transfer their privileges of access, extraction, management, and exclusive use to other entities. Transferability is generally necessary for use rights or opportunities to have market value (e.g., they can be sold, inherited, or used for collateral). Because this opportunity of transferability occurs on or within public lands that are subject to USFS oversight, it would generally be considered a qualified, limited, or conditional fee simple title and not absolute fee simple title. Some examples of instances in which users are allowed to transfer their rights are: water rights; mineral rights; private inholdings, tribal rights, and public roads.

Other Factors Influencing Use Privileges

Seven other factors help to define, characterize, and evaluate the nature of the relationships (linkages) that users have to the land. These considerations are often contained in agreements between the USFS and the users and help to identify the expectations that various users may have about those agreements. These considerations can help to inform management decisions, especially in situations where there may be conflicts between different uses. These other seven factors are:

1. *Legal basis for the use of NFS land and resource(s)*
 - What is the legal basis for use of the resource?
 - Does the user have specific authorization to use the resource through a title, deed, contract, lease, grant, cooperative agreement, or permit to use the resource?
 - If not, how is the use authorized? Or, is the use unauthorized (illegal)?
2. *Time dimension associated with the use*
 - Past use: how long has the use right or opportunity been in place or exercised?
 - Current use: Is the term for which the use is approved specified (e.g. seasonal)? Is the time in which this use takes place on the forest known?
 - Future use: What are the terms for future use? Is the agreement for use in perpetuity, for continuing use until further notice, on a renewable basis, or for a specified term (e.g. annually)?
3. *Geographic specificity of the use*
 - Is the use site specific or geographically restricted?
 - Can the use only take place in certain areas or locations?

4. *Occupancy associated with the use*

- Does the authorization grant surface occupancy rights?

5. *Conveyance privileges*

- Does the user have authorization to convey a resource across federal land whether or not the resource is being extracted from that federal land?

6. *Economic aspects associated with the use*

- Was money exchanged between the user and the US government (sale, lease, permit fee) to obtain the authorization to use the resource?
- Were investments made to be able to use the resource (e.g. range improvements, water diversion INFRA structure, oil and gas pipelines)?
- Does the use provide subsistence resources for the user?
- Does the use provide employment and/or income for the user?
- Is the use commercial or non-commercial in nature?
- What is the nature and extent of public subsidization of a private activity?

7. *Responsibilities associated with the use*

- What responsibilities does the user assume?
- Is the users' authorization dependent upon these responsibilities being fulfilled?
- How do the responsibilities shape or structure the relationship that the user has with the land?

The types of use linkages that people have to public land are defined by different combinations of these privileges, responsibilities and conditions on their use. Assessing use linkages involves describing both the nature of the linkages and the people who are in those linkages. The extent to which permits include this information would help with assessments, impact analyses, and monitoring.

Interest Linkages

These linkages to USFS land come through being a part owner of the land (through being a U.S. citizen) or a user of the land (people who are not U.S. citizens can be included) and, thus, having a say or identified interest in how it should be managed. Interest linkages are defined as linkages that do not necessarily involve a physical connection to NFS lands. This does not mean that people who are in these linkages are not also involved in various types of use linkages but, in those instances, we would categorize them as being in a use linkage in addition to being in an interest linkage.

General Public Linkages

This linkage conveys the right to have a voice or express an opinion in how the land should be managed, but it is distinguished from special interest linkages in the sense that the specific persons in this linkage have not exercised this opportunity or have deferred to the decisions of elected representatives and public land managers. Laws such as the Administrative Procedures Act, the Freedom of Information Act, and the National Environmental Policy Act give all United States citizens the right to be informed of and involved in decisions regarding public lands. Since they are charged with managing "the people's lands," USFS staff takes very seriously the obligations and responsibilities they have to manage NFS lands on behalf of and in trust for "the public."

Special Interests or “Motivated Interest” Linkages

This linkage refers to special interests that the entities in this linkage have, which have been brought to the attention of the USFS (otherwise, the linkage remains at the level of an unexercised or deferred right and would be categorized under “general public linkage”). These interests are not necessarily expressed by geographically proximate groups or individuals (e.g., adjacent landowners or local community officials) but are issue-driven. These linkages are important because they are an indication of which kinds of groups or individuals have a particular stake in the different activities that are allowed on the forests. In addition, the USFS has to balance the demands of different advocacy or “special interest” groups, which sometimes compete with one another.

There are literally hundreds of existing or potential advocacy groups that seek to influence USFS decisions. Based on existing planning issues and recent USFS public involvement efforts, groups included in the “motivated interests” likely will be concerned about issues such as: wilderness, conservation, biodiversity, tourism, travel, outfitting, sporting, real estate, promoting local businesses, non-motorized recreation, anti-environmentalism, off-road vehicles.

This is not an exhaustive list, nor are the categories totally separate or distinct. Some entities may occur in one category for a certain issue and in another category for a different issue, or they may change advocacy positions during the life of an issue. And entirely new advocacy or special interest groups may emerge, as new issues emerge or existing ones change. In fact, many use linkages listed in section 2 above have one or more advocacy interests. This is why social linkage analysis must be fluid and can only be accomplished by first conducting a formal problem or issue analysis. A general social linkage analysis for all forest-related issues, resources, and geographic areas in the abstract would be a massive undertaking. In order for all interested and affected publics to “see themselves in the social analysis,” the actual identification and categorization of advocacy groups must be based on the specific planning issues, alternatives, and management prescriptions.

Cultural, Heritage and Historic Interest Linkages

These linkages may not entail a current use, but require additional consideration because of federal laws. Under various federal laws related to cultural, historic and archeological resources, the U.S. government has deemed preserving heritage and history of special interest to all Americans. Sometimes these linkages signify a place, structure, or artifact that has special significance to a group of people. The USFS (and all federal agencies) have certain responsibilities to protect cultural and historical values and resources.

Contributor Linkages

This category refers to linkages that some people have to the National Forests in which they are contributing in some defined way to accomplish the mission of the Forest Service (e.g. donating labor, money, materials to the National Forests or partnering with the USFS on projects). These linkages are becoming increasingly important for the USFS as it tries to meet growing stewardship needs with constrained budgets. Partnerships are authorized by 34 different laws. They can be formalized by cost-share, collection, participating, volunteer, or cooperative agreements depending on the relationship.

A2

Partnerships: According to the 1999 Partnership Guide, a partnership is a “voluntary, mutually beneficial, and desired arrangement entered into between the Forest Service and another or others to accomplish mutually agreed upon objectives that are consistent with the agency’s mission and serves the public interest.” Partnership arrangements vary, but the groups who cooperate usually fall into one of the following subcategories: 1) USFS with local interests, such as heritage associations or hiking clubs; 2) USFS with private interests; 3) USFS with non-profit organizations such as the National Forest Foundation, the National Fish and Wildlife Foundation, or the Nature Conservancy; 4) USFS with other governments such as Native American tribes, states, counties, communities, and associations of governments.

Volunteers: This is a subset of partners. These are people who share a mutual goal and receive mutual benefits from their association with the National Forests, and who volunteer to do work on the National Forests. The USFS has a formal program for recruiting volunteers. Local groups in the vicinity of the National Forests often volunteer to do special projects. Examples of volunteers include: students and teachers doing service learning projects, Boy Scouts, amateur archeologists volunteering under the direction of professionals, dedicated hunters doing a day or two of intensive work, AmeriCorps, VISTA, student conservation aides, OHV club members who sign and improve trails, and some retired people who spend a season working as campground hosts, building trails, etc.

Financial Cooperators: This subcategory refers specifically to linkages involving financial arrangements, such as challenge cost shares, cooperator agreements, and donations. The persons or organizations in these linkages are contributing financial resources to the USFS.

Science Linkages

These linkages to the national forests are defined by those people/entities that have an interest in conducting research on the National Forests. Scientific linkages are often long-term due to the nature of ecosystem level research. Science linkages often rely on linkages between local forests and the science arm of the USFS (Forest Experiment Stations) or universities.

Economic Linkages

Many people/entities have economic interests in National Forest lands whether or not they actually use those lands or have a direct physical connection to them. These linkages refer to economic interests that are not directly dependent upon resource extraction from the forests for commodity purposes (in which case, the linkages are more appropriately defined as use linkages). These linkages recognize the economic interests of communities and counties in which NFS lands are located.

The economies of communities and counties in the vicinity of public lands are shaped in many ways by the existence of those public lands. For example, nearby public lands influence the economic opportunities available to these communities, reduce the available property tax base but substitute revenues from various federal land payment and receipt-sharing programs (e.g., Payments in Lieu of Taxes or PILT), and require provision of local government services for large tracts of land (e.g., emergency services, law enforcement). In addition, since many of the economic opportunities in these areas are related to the very existence of public lands (e.g., resource extraction, recreation and tourism), the health of the

land and the ecological services that the land provides (e.g., clean water and wildlife habitat) help reinforce local economies.

Neighboring Land Linkages

These linkages to USFS land are through ownership of land within, adjacent to, or nearby the forest. Ownership may be by private entities (e.g., individuals, corporations, non-profit entities) or the land may be held in local, state, or other federal government ownership. These linkages are particularly important in the context of identifying management issues or broad socio-economic trends that may entail changes in demands and uses of public and private land in a particular area containing National Forests.

Neighboring land linkages are important in forest planning for several other reasons. First, as a landowner, the U.S. government has legal obligations to its neighbors, which include the obligations to prevent nuisance, damage, or harm to other people's lands. Secondly, with the USFS' emphasis on ecosystem management, it is important to coordinate with other landowners who own parts of the ecosystems. Third, because many resources cross land ownership boundaries (e.g. water, wildlife, air), the U.S. government and its neighbors have a mutual interest in the health of those resources. Neighboring land linkages are increasingly important as the USFS deals with issues such as managing fire risk, controlling invasive species, and protecting habitat for threatened and endangered species.

Three basic subcategories of neighboring land linkages have been identified.

Land Inholding Linkages

These linkages refer to ownership of land within the boundaries of National Forests and are considered to be an inholding. The USFS has more influence over what happens on inholdings than it does on other neighboring lands because of their location within the forests.

Adjacent Land Linkages

These linkages refer to ownership of land that shares a boundary with USFS land and, thus, is directly and physically connected to National Forests.

"Nearby" Land Linkages

These linkages refer to ownership of "nearby" land, which is defined to be land within watersheds or ecosystems that contain all or part of the NFS land (i.e., the boundaries for identifying neighbors are defined physically or ecologically because of the implications for assessing impacts and opportunities and for engaging in ecosystem management). Linkages between NFS lands and downstream landowners and water users are important because of the USFS' statutory mandates to protect watersheds and the need to manage downstream risks from activities that may occur on National Forest lands.

Because of the importance of neighboring land linkages, this assessment package prepared by the GOPB Team contains maps of political and natural landscapes in the Tribal, County, and Forest profiles.

Decision-Making Linkages

These linkages to public land are through institutional jurisdiction over land and/or resources that lie within the boundaries of the Dixie, Fishlake, and Manti-La Sal National Forests. Generally, tribes or government agencies are in most of these linkages. The USFS has decision-making linkages with local counties and tribes, which may have law enforcement responsibilities, zoning authority over inholdings, obligations to provide emergency services, and general land planning responsibilities. These decision-making linkages are the result of the fact that, in the U.S., authority and responsibility over managing resources, implementing laws, and overseeing permitting processes has been divided between different levels of government (federal, tribe, state, and local) and between different agencies within those governments. These linkages are important because they imply shared decision-making, management coordination, and monitoring authority over activities that directly influence NFS land.

Examples of federal agencies that have decision-making linkages to National Forests include:

- The United States Forest Service (local forests have to coordinate with the regional and national offices and with other branches of the agency (e.g. Forest Experiment Stations; State and Local Forestry Programs)
- Bureau of Indian Affairs (BIA)
- Environmental Protection Agency (EPA)
- Fish and Wildlife Service (FWS)
- Geological Survey (USGS)
- Bureau of Reclamation (BOR)
- Army Corps of Engineers
- Bureau of Land Management (BLM)
- Department of Interior (DOI)

The USFS also has linkages with various state agencies that have management authority over some resources on the forests or have programs to implement various federal laws, such as:

- Utah Division of Wildlife Resources
- Utah Division of Water Resources
- Utah Division of Water Rights
- Utah Division of Oil, Gas, and Mining
- Utah Department of Environmental Quality
- Utah Division of Indian Affairs
- Utah Division of State History, State Historic Preservation Office
- Utah Office of Planning and Budget
- Utah Resource Development Coordinating Council
- State of Colorado (relevant for the Manti-La Sal National Forest)

The jurisdiction of other government agencies over decisions affecting NFS lands comes from several sources, which help to define the following subcategories of decision-making linkages.

Collaboration Linkages

These linkages refer to the newer public-involvement approaches that the USFS is taking to include people in forest plan revision and related decisions on these forests. These linkages recognize the involvement of the public in decision-making about public lands. There are several different levels of public involvement, depending on final decision authority. The first is unilateral, in which public involvement is minimal, and the final decision responsibility rests with one person or official. Consultative is where others are involved in discussing the decision, giving advice, etc., but the final decision still rests with one authority. Collaborative is where everyone sits down together and discusses and decides either by consensus or majority rule. While forest plan revision may proceed primarily by the consultative approach, elements of all three will be reflected in specific issues or management prescriptions and future decisions related to the plan.

Coordination Linkages

These linkages are based upon the fact that another government agency has been given primary authority to manage various natural resources found on NFS lands, such as wildlife or water. Thus, the nature of these linkages between the USFS and other agencies is one of coordination and cooperation. These are linkages in which the USFS engages for effective land planning and management, but linkages that may not be legally mandated.

One of the most important areas for coordination occurs in the area of land and resource planning. Tribes and local governments (counties, cities) are generally responsible for land use planning within their reservations or jurisdictions. Because of the importance of coordination between federal land use planning and local planning, these linkages are given special attention in this assessment package.

Consultation Linkages

These linkages refer to the fact that the USFS is required, in some instances, to engage in formal consultation with another government or agency. Examples of this linkage include the obligation of the USFS to consult with Native American tribes, to obtain formal consistency reviews from States on its management plans and actions, to consult with US Fish and Wildlife Service regarding threatened and endangered species, and to consult with the State Historic Preservation Officer.

Compliance Linkages

These linkages refer to the fact that, in some instances, oversight of compliance with various laws has been assigned to another government agency and, in order to comply with these laws, the USFS must go through formal permitting or permission procedures handled by another agency. The requirement that the USFS comply with various environmental quality laws by going through permitting procedures and submitting to oversight from the U.S. Environmental Protection Agency and the Utah Department of Environmental Quality is an example of these types of linkages.

DATA SOURCES AND RESEARCH NEEDS

Social assessments are important for obtaining a more scientific, systematic, and representative understanding the human dimensions of public land planning and management than can be obtained through use of public involvement and collaboration techniques alone. Traditionally, social assessments focused on describing the social environment of nearby communities because people were thought of primarily in terms of their residential communities, i.e. where they live. The LPL Framework focuses on assessing the social environment of the forests and, thus, focuses on people in terms of their linkages to the land.

The findings on the economic, demographic, and planning contexts of the counties surrounding the Dixie, Fishlake, and Manti-La Sal National Forests help frame the context in which forest planning must take place. These findings give some idea of the general relationship between local residents and the National Forests, but there are several planning needs these data do not address. It is difficult to identify the relationships between economic and demographic data and particular activities that occur on the National Forests, especially down to the specific ranger district or geographic area. Furthermore, there are many non-economic uses and values that are not reflected in the economic data, such as factors like “community risk” and “vulnerability” that are important extensions of the standard county level economic impact analyses in social assessments.

Every National Forest has a large number of databases at its disposal, but social data often are not used effectively in forest planning or decision documents. While there has been a tradition of using biophysical data in USFS planning, that is not true of social science data. For example, every year USFS staff writes thousands of permits for resource use and access, but this information is usually not used in social assessments, despite its usefulness for describing and tracking social linkages. There are several reasons for this. The quality of social data can be uneven, some data are not directly linked to the forest resources or geographic units, and, until recently, most social data were not stored in readily accessible formats.

In the past, data on the National Forests have been dispersed in different departments, stored in non-relational data bases, or, in the case of much of the social data, not put on computer at all and simply thrown away after a period of time. Depending on their jobs, specific staff worked with particular databases, and was unaware of many other potential data sources. However, the development of INFRA, GIS, and other data management capabilities within the Forest Service has greatly improved potential data accessibility.

The purpose of this section is to document major data sources and files that can be used to describe social linkages that go beyond the county and tribal assessments and that can be used as the basis for issue specific social linkage analysis. The focus is on documenting socially relevant data that start with the Forest resource uses or interests, and can be traced back to the relevant individuals, social groups, or communities of interest.

To collect this data, we interviewed Forest staff and reviewed state databases to identify candidate data sources, and we reviewed the relevant data files to evaluate the available information regarding the social linkages found in the Linkages to Public Land Framework. We also reviewed the forms, agreements, and other documentation that would help identify the rights and responsibilities of both the USFS and the users, and identify variables that are

potentially available, but may not be recorded or stored in electronic format at the present time.

The data we found were of two types for helping us to assess people's linkages to the land. The first type of data is sources that can help provide information on the "nature of the linkages" (i.e., legal and financial aspects of the linkage, and the stewardship responsibilities (if any) of the Forest user). The second type of data is sources that contain information on the "people in the linkages." Our search for information of the second type focused on the key elements of the "linkage" concept; that is, we focused on data bases that contain, or could *potentially* contain (since data availability and quality varied by forest) information on the name or type of forest user group, their address, the activity and location on the forest, and the amount or extent of resource use. We assessed the accessibility and usefulness of the data sources for various social linkage categories. In addition to providing a framework for conducting an assessment of linkages people have to the land, another purpose of this exercise was to use some of this data to show examples of the use to which they could be put in the Use Linkages and Interest Linkages sections below. Also, we hoped to make recommendations for improving the storage and accessibility of social data for use in future USFS planning.

Below is a discussion of some of the primary data sources that are particularly helpful for describing linkages to the land. The primary emphasis is on data found on the National Forests, especially data sets contained in INFRA, the Forest Service's new integrated data system. Here we briefly describe the organization and purpose of these databases, the type of data they contain, and how the data can be used to describe people's linkages and the monitoring of those linkages. In particular, each data set is assessed for its value to help describe some of the types of linkages to the land discussed previously, the spatial aspects of social linkages (both the geographic location of the linkage activity and the social group), and the temporal aspect of social linkages (historical or tracking change over time).

INFRA: The USFS's Integrated Data System

INFRA is a fully relational database system that was designed to correct many of the data storage and access problems faced by the USFS. INFRA stores data pertaining to a National Forest's constructed features, property accounting, permit administration, and billings. INFRA provides a uniform data structure (i.e., Oracle-based spreadsheets with link fields to many other data bases), to facilitate reporting and mapping data. According to the *INFRA Coordinator Handbook*, the data in INFRA are "core data" required by all field offices in conducting normal daily business. Database files and many fields in the INFRA databases and reports are standardized throughout the NFS, however some detailed reports and spreadsheets may be Forest-specific.

This analysis and the specific file names contained in the summary tables (Table 1 and Table 2) are based on the INFRA system in place on the Dixie National Forest. The Dixie has the largest number of databases, and the most database files and fields in common with the other two study Forests. So the specific data file and report names for the Fishlake and Manti-La Sal may differ slightly from those listed in the table, but the general location within INFRA and the specific data fields categorized in the table should be consistent across all three Forests.

Of greatest value for social linkage analysis are the data stored in the Business Area applications; particularly the Range, Recreation, Special Uses, Timber, Timber Permits, Visitor Use Permits, and Wilderness files. The databases in these files are especially useful for characterizing use linkages, especially the extent, location, type of access, extraction rights, and duration of use. Some forms also include information on the nature of the conveyance (e.g., backcountry recreation permits) and management responsibilities and exclusivity (e.g., range permits). Additionally, Engineering files (Dams, Roads, and Waste System and Water System files) contain information on the neighboring land linkages and decision making linkages, and the Grants and Agreements file contains information on interest linkages such as administrative and research cooperators.

The Visitor Use Permit database contains only limited data related to access and conveyance aspects of use rights. INFRA has some limited data on backcountry permits and trailhead register information. These data can be incomplete (due to limited and uncertain compliance) and they only tap backcountry uses. The database contains some information on residence (city and state), however, and can be used to monitor both historical and future changes in backcountry use, as these databases go back to 1991. There is also a large “customer vehicle” data base in the user profiles report of the Timber file (e.g., on the Dixie National Forest, there are 2,175 cases going back to 1940, which contain owner names, states, and vehicle types for persons who were apparently authorized to access and use slash wood at harvest sites.

The Engineering file contains details on the location, structure, and management of the constructed features on the Forest. Some of these files (especially the dams, roads, waste systems, and water systems files) contain information regarding administrative and management responsibilities, which have implications for interest, neighboring land, and decision-making linkages. For examples, on the Dixie National Forest, there are over 285 dams and about half of these are privately owned. Also, there are 885 water systems, of which about half have “user permittees” who are responsible for at least some maintenance. Unfortunately, there is not much additional detail in these files that can be used for describing the nature of the linkages, but the existence and nature of use of these linkages are important, especially for certain types of planning actions like road closures. The County and Congressional District where each feature is located is also included in most of the Engineering files.

The historical value of the INFRA databases is limited, however. Some permit data were only collected a few years into the past (when INFRA was instituted), and some valuable social linkage data (e.g., campsite permits and Christmas tree cutting permits) are still not included in the databases. The INFRA data are very accessible, however, and their value for conducting future social assessments is increasing.

Volunteer Report Forms

Another data source that is available on all Forests is the volunteer report forms. These are detailed tallies of the voluntary service agreement forms that must be completed by individuals and groups that conduct “noncompensable” work on the Forests. Hundreds of persons perform thousands of hours of volunteer work on each Forest every year. In 2002, for example 13,612 hours of volunteer work were completed on the Manti La Sal National Forest. This was estimated to be worth \$180,224 of economic value to the Forest, and the

equivalent to 7.55 person year's worth of work. In a recent study on the Uinta National Forest, volunteers reported very high levels of satisfaction, meeting personal needs for altruism, nature experiences, as well as social group and organizational goals. This data source reveals that volunteers are usually members of local church, service, scout, education, recreation, sportsmen, and special interest organizations that share an interest in nature and natural resource stewardship, and most have past experience volunteering or visiting the National Forest.

The voluntary service agreements and the volunteer report forms are kept by District-level volunteer coordinators. The volunteer report forms include the group leader's name and address, the names and number of persons in each group, the age, race, and gender of each volunteer, the tasks performed (which can usually be linked to a geographic location on the Forest), the total hours worked, and the estimated economic value of the work performed. These records are summarized annually and submitted to the Supervisor's Office in the Human Resources Programs Accomplishment Report. But the greatest value for social linkage analysis is in the raw data in the volunteer report forms. These data can be summarized to identify interest and user groups' linkages to specific activities and geographic areas on the Forests. This would provide detailed information on contributor linkages, and the names and types of groups involved can also provide information on special interest, cultural/heritage, and cooperator linkages in the interest linkage category, and proprietary, authorized use, and authorized entrance linkages in the use linkage category. The value of the data for historical use is marginal because the data has historically been kept for just three or four years, although that may differ by Forest district. But these data would be very useful for monitoring contributory linkages.

Visitor Use Monitoring Surveys

Non-permitted recreational uses and access are some of the most difficult use linkages to describe. Recreational uses on the National Forests are both diverse and dispersed. Everything from sightseeing while driving to work on the Cedar Mountain Highway to a three-week backpacking trip may be considered a recreational use. In response to the difficulty of obtaining and using data related to recreational use and access, the National Visitor Use Monitoring (NVUM) project was developed in the late 1990s. The purpose of the NVUM project was to develop a consistent methodology and implement a standardized set of visitor use and satisfaction questions to enhance data comparability and monitoring over time. (See <http://www.fs.fed.us/recreation/programs/nvum/> for methodological and survey details and results.) The Manti-La Sal National Forest conducted a NVUM survey in 2000, the results of which were released in August 2002, the Fishlake National Forest more recently completed a NVUM survey data collection and the report was issued in August 2003, and the Dixie National Forest has just completed the NVUM survey and expects results in the near future.

The primary value of the NVUM data is to provide use and activity estimates Forest-wide, but the data can also be used to indicate the location of activities, use of certain facilities, and the respondents' estimates of the importance of, and satisfaction with, various aspects of their visits (such as scenery, facilities, and trails). Respondents' zip codes allow for a geographic community analysis of the raw data, and other use linkage information can be obtained by conducting bivariate analyses based on specific recreation activities (e.g., for campers and

hikers). Besides use linkage information, these analyses can also be used for satisfaction and management preference information. While these data will eventually be valuable for monitoring trends over time, they do not provide historical aspects of the recreation use, and the data analysis tasks described above may be difficult and require an analyst skilled in survey research analysis and statistics.

Public Meeting and Scoping Records

While INFRA databases provide a rich source of information regarding use linkages, and to a lesser extent neighboring land and decision making linkages, it provides little information beyond names and addresses regarding interest linkages. Interest linkages are inherently less measurable, and sources of data to describe these linkages are often not found at the USFS (e.g., community surveys, historical archives, newspaper articles, web sites, etc.). One source of interest linkage information found on all Forests are the summaries of citizen input from public meetings, workshops, and scoping activities related to past projects, decisions, and plans. Using these meeting results as secondary data can provide Forest planners with useful interest linkage information regarding specific planning issues like fire and road management. Using content analysis, the results of past meetings can be summarized for the participant's residence, group affiliation, positions on particular issues, reasons for their positions, use of particular resources or geographic regions, and opinions on possible management alternatives or opportunities for addressing the issues.

The applicability of these data, however, will be limited. They can only be applied to particular planning issues, and links between the original meeting purposes and planning issues must be very direct. And the extent and quality of the original record keeping may limit the value of the data for describing the linkages. There needs to be an evaluation of the geographic context for which the original data were collected, and there will be little historical or monitoring value, because the qualitative data and participants were self-selected. Thus, the results will not be representative of the public at large and other use or interest groups that do not participate in the public meetings. In fact, meeting participants may not even represent the interest groups to which they belong. For example, a representative of an environmental or an ORV group may be much more extreme than his or her group members as a whole.

Public Correspondence Files

All Forests keep files of telephone and mail correspondence at the administrative level. While some of the correspondences are confidential, others are summarized in Lotus Notes and available for review and secondary analysis. The content and structure these records are variable, but the use and value of these files is similar to the public meeting records discussed above. The name and organizational affiliation (if applicable) of the correspondent is recorded as well as a brief note on the content of correspondence. This content is variable, but at a minimum can contain information related to the correspondent's residence, group affiliation, positions on particular issues and geographic regions, reasons for their positions, and opinions on possible management alternatives or opportunities for addressing the issues. Information or questions on past use would help add a quantitative, historic context to the input and be more valuable for social linkage descriptions, but it would be difficult for these data to be useful for monitoring beyond simple annual tallies of the number of calls

about particular issues, geographic locations, and groups or communities of interest. Again, because of the self-selected nature of the correspondence, these records are not representative of the general public or even the interest groups to which the correspondent belongs. And the historical and monitoring value of these records is low, although very general trends in the numbers of people, types of concerns, and interest groups involved may be obtained.

Newspaper Clipping Archives

Each Forest and Forest District also keeps an archive of newspaper articles dealing with issues of concern for the individual Forests. These archives may serve as a source of information regarding interest linkages related to specific issues, geographic locations, and interest groups. For use in tracking historical trends and for future monitoring, there would have to be a secondary, quantitative analysis of these archives. The articles can be organized by resource category (e.g., timber, grazing, and water), use or impact issue (e.g., off-highway vehicles, fire) or region of interest (e.g., district, watershed, geographic region). Content categories could include information related to a correspondent's residence, group affiliation, and positions on particular issues or geographic regions, reasons for their positions, and opinions on possible management alternatives and opportunities for addressing the issues. This approach, however, will require Forest staff to apply a significant amount of time in secondary data analysis. New software programs are being developed to aid in these types of analyses, and Forest Service scientists in the North Central Forest Experiment Station are pioneering this form of data analysis and analyzing data trends. Due to the need for content analysis and qualitative data coding and computer data base management skills, however, the content analysis of these archives would probably only be possible for certain key issues or problems being addressed in the Forest plans.

Other Data Sources

Many off-Forest data sources and linkages shown in these sources were identified by Forest Service data keepers. People, organizations, agencies, laws, uses, and facility types were all used as parameters to search and identify data sources that could describe *forest-people linkages*.

The most useful Utah data sources are those maintained by state natural resource agencies, which contain information on people who are permitted by the state to use resources that can be found on NFS lands (e.g., water, minerals, hunting, and fishing). Utah data on water and minerals can be used to establish direct people-forest linkages since points of water diversion and storage and the location of mineral claims are geographically fixed and site-specific. Data on hunting and fishing permits contain information on the people who engage in those activities, but where they hunt or fish cannot be determined, thus, linkages to NFS lands cannot be established directly from the data sources. However, the lists of people permitted to hunt and fish in Utah would be useful as a sampling frame for survey research.

One approach we used to establish interest linkages to NFS lands was to search for groups or people that had interests in individual Forests or forest-related activities using the Internet. An initial search identified about 4,000 hits for the Manti-La Sal and Fishlake National Forests, and 59,000 hits for the Dixie National Forest. (The difference was probably related to the broader and more generic uses of the term "Dixie.") Many of these groups and organizations identified were linked to each other, so we narrowed the list to unique groups. Some results from this inquiry are presented in the Interest Linkage section below.

A2

Nature Table

SOCIAL LINKAGE		DATA on NATURE of the LINKAGES														
		Legal Authority (for the use) (Statutes; Codes; Regulations)	Legal Aspects of Linkage					Financial Aspects					Responsibilities (Comments on whether responsibilities are specified and/or well understood.)			
			Agreements (for the users) (Forms)		Time (Y/N)		Place of use	Surface occupancy	Conveyance right	Fee Paid (Y/N)	Investment	Match (Y/N/V)		USFS Pays (Y/N/V)	Commercial	Non-Commercial (Y/N/V)
			Term	Time												
USE																
Ownership																
Water Rights		Water Code of Utah; Utah Code, Title 73.	State Permits and Forms available at http://nrwtl.nr.state.ut.us/wrinfo/forms/default.asp seg.pdf Segregate water appl. proof.pdf Beneficial use proof replace.pdf Replace existing well appl nonuse.pdf Nonuse continued water right appl exchange.pdf Exchange of water appl. assign.pdf Assignment of water right appl testwell.pdf Test well appl tchange.pdf Temp. change of water right appl change.pdf Permanent change appl treport.pdf Water right conveyance report renovate.pdf Renovate existing well appl dil.pdf Diligence claim extb14.pdf Extension and reinstate <14 yrs nonuser.pdf Resumption of water use proof exta14.pdf Extension and reinstate >14 yrs approp.pdf Appropriations appl	Y	Y	Y	N	Y	Y	Y	N	N	V	V	The usual form of water rights found in the Utah Division of Water Rights data base are carefully described so as to be well understood but not guaranteed .	

Mineral Rights	Utah Code Annotated 1953, as amended Mining Law of 1872 (May 10, 1872), as amended (30 U.S.C. 22-54) Mineral Leasing Act, 30 U.S.C. 181 et seq 41 Stat. 437, 30 U.S.C. 181-287 Act of July 31, 1947 (61 Stat. 681), as amended at 30 U.S.C. 601 through 604, 30 U.S.C. 351-359, 61 Stat. 913, 30 U.S.C. 29, section 2325 of the Revised Statutes Stock Raising Homestead Act of 1916, as Amended by the Act of April 16, 1993. Act of 1920, Act of February 25, 1920, as amended Mined Land Reclamation Act, Title 40-8, Federal Land Policy and Management Act of 1976, <i>as amended</i> , (43 U.S.C. 1733 and 1735). Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212 (false fictitious, or fraudulent) U.S.C. Appendix 1031, Other Special Acts Section 402 of Reorganization Plan No. 3 of 1946 Clean Water Act (33 U.S.C. 1252 et seq.) Clean Air Act (42 U.S.C. 4274 et seq.) Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.).	BLM Form 3809-1.pdf - Surface Management Surety Bond - Form 3809-2.pdf - Surface Management Personal Bond - Form 3809-4.pdf - Forms for Bond Rider Extending Coverage of Bond to Assume Liabilities for Operations Conducted by Parties Other Than the Principal (Consent of Surety) Rider - Form 3830-2.pdf - Maintenance Fee Waiver Certification - Form 3830-3.pdf - Notice of Intent to Locate a Lode or Placer Mining Claim(s) and/or a Tunnel Site(s) On Lands Patented Under the Stock Raising Homestead Act of 1916, as Amended by the Act of April 16, 1993. 3400-12 - Coal Lease - Mineral Lands Leasing 3440-1 - Application and License to Mine Coal (Free Use) 3510-1 - Prospecting Application and Permit, , 5 3600-9 - Contract for the Sale of Mineral Material 3860-5 - Application for Survey of Mining Claim	Y	Y	Y	Y	Y	Y	V	V	V	V	Disposals of salable minerals from BLM administered lands are regulated by Title 43, Code of Federal Regulations (CFR), Part 3600. Sales are at the estimated fair market value. A free use permit may be issued to a Government agency or a nonprofit organization. Disposals from National Forest System lands are regulated by Title 36 CFR Subpart C, 228.40. On National Forest System lands, you may need a special use permit from the Forest Service. Utah Division of Oil, Gas & Mining subcontracted to manage this resource by BLM
	Section 402 of Mined Land Reclamation Act Mined Land Reclamation Act, Title 40-8, Utah Code Annotated 1953, as amended, and the General Rules as promulgated under the Utah Minerals Regulatory Program. Title 40-8-14(7) Section 40-8-13(2) confidential clause Title 40-8, Utah Code Annotated, 1953, as amended, Title 40-8 7(1)(e) Title 40-8-1 Utah Mined Land Reclamation Act of 1975 [40-8-7 (1)] Utah Mined Land Reclamation Act Chapter 8, Title 40, Utah code Annotated, Amended 1987	Div of Oil, Gas & Mining subcontracted by BLM dogm MR-5.pdf Surety Bond ,B dogm MR-6.pdf Joint Agency Surety Bond ,B dogm MR-AR.pdf Annual Report of Mining Operations dogm MR-CD-Joint.pdf Joint Reclamation Surety, Certificate of Deposit dogm MR-CD.pdf Reclamation Surety, Certificate of Deposit dogm MR-EPR.pdf Mineral Exploration Progress Report dogm MR-EXP-Amend.pdf Notice of Intention to Amend Exploration Project dogm MR-EXP-REV.pdf Notice of Intention to Revise Exploration Projects dogm MR-EXP.pdf Notice of Intention to Conduct Exploration dogm MR-TRS.pdf Transfer of Notice Of Intention Small Mining Operations dogm MR-LMO.pdf Notice of Intent to Commence Large Mining Operations dogm MR-LOC-Joint.pdf Joint Letter of Credit dogm MR-LOC.pdf Letter of Credit dogm MR-RC-Guide.pdf Guideline for Completing										Utah Division of Oil, Gas & Mining subcontracted by BLM to manage the Mineral Rights in the State of Utah	

Nature
Table

		Reclamation Contract, FORM MR-RC dogm MR-RC.pdf Reclamation Contract dogm MR-REV.pdf Notice of Intention to Revise Mining Operations dogm MR-SMO.pdf Notice of Intent to Commence Small Mining Operations dogm MR-TRE.pdf Transfer of Notice Of Intention Exploration Project dogm MR-TRL.pdf Transfer of Notice Of Intention Large Mining Operations													
Proprietary															
Power line	FLPMA	FS-2700-4 or easement	Y	N	Y	Y	Y	Y	Y	N	N	Y	N		
Outfitter / Guide	LWCF Act 1965 FS use code 153 PL 88352 Civil Rights Act of 1964 7 CFR Part 15 U.S. Department of Agriculture issued pursuant to that Act EIS The comment period on the draft environmental impact statement will be 45 days from the date the Environmental Protection Agency's notice of availability appears in the Federal Register. It is very important that those interested in this proposed action participate at that time. To be the most helpful, comments on the draft environmental impact statement should be as specific as possible and may address the adequacy of the statement or the merits	FS-2700-3 FS-2700-3a 1700-01 assurance of Civil Rights Act compliance Outfitter Policy act of 2001 http://www.agriculturelaw.com/legis/bills107/hr2386.htm Special Use permits renewal (In addition, Federal court decisions have established that reviewers of draft environmental impact statements must structure their participation in the environmental review of the proposal so that it is meaningful and alerts an agency to the reviewers' position and contentions. Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 533 (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final environmental impact statement. City of Angoon v. Hodel, (9th Circuit, 1986) and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). The reason for this is to ensure that substantive comments and objections are made available to the Forest Service at a time when it can meaningfully consider them and	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	Forms used are a generalized form for Special Uses on the Forest, rather like a contract.	
	of the alternatives discussed (see The Council on Environmental Quality Regulations for implementing the procedural provisions of the National Environmental Policy Act at 40 CFR 1503.3)	respond to them in the final. Dated: December 23, 1997. Michael Sieg, District Ranger. [FR Doc. 97-34202 Filed 12-31-97; 8:45 am] BILLING CODE 3410-11-M) http://www.epa.gov/fedrgstr/EPA-IMPACT/1998/January/Day-02/i34202.htm													

Nature Table

Appendix

Recreation Residence	16 U.S.C. 551 code 311 114 STAT. 1014 PL 106-291—OCT. 11, 2000 Act of March 4, 1915 Organic Act of 1897 Federal Land Policy and management Act of 1976 Term Permit Act, National Forest Ski Area Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act, Act of September 3, 1954, Wilderness Act, National Forest Roads and Trails Act, Act of November 16, 1973, Archeological Resources Protection Act, and the Alaska National Interest Lands Conservation Act System lands.	FS-2700-3a FS-2700-3b FS-2700-5	Y	N	Y	Y	N	Y	Y	N	N	N	Y	
Claim Grazing	See FSM 2201, FSM 1910.1 and FSM 1920.1 for summaries of laws and regulations National Historic Preservation Act Amendments of 1980 (P.L. 96-515, 94 Stat. 2987; 16 U.S.C. 470) Forest and Rangeland Renewable Resource Research Act of 1978 (16 U.S.C. 1600 (note)) Department of Agriculture Organic Act of 1862 (7 U.S.C. 2201)	FS-2200 series 2200-2003-1_transmittal 2200_contents 2200_zero_code 2210 2230 2240 2250 2260 2270	Y	Y	Y	V	Y	Y	Y	V	V	Y	N	
Authorized Use														
For. Products Removal	16 USC 472a, 551; 30 USC 601, 602; 43 USC 1201; 16 CFR 223; & 43 CFR 5420 USDA Forest Service. 1991a. Title 2400 – Timber Management. Amendment No. 2400- 91-9. Forest Service Manual. Washington, D.C. Effective July 26. 12pp.	FS-2400-1 Forest Product Removal Permit	Y	N	V	N	Y	Y	N	N	N	Y	Y	

Nature
Table

Hunting and Fishing	Utah Wildlife Code, as found at: http://www.le.state.ut.us/~code/TITLE23/23_02.htm described in proclamations at: http://	http://www.wildlife.utah.gov/proclamations/ Utah Hunting License applications and permits Big Game Proclamation - Bucks, bulls and once-in-a-lifetime — 2003 proclamation — 2002 proclamation - Antlerless Addendum to the Big Game Proclamation — 2003 addendum — 2002 addendum Fishing Proclamation & Information - Fish and crayfish — 2003 proclamation — 2002 proclamation Waterfowl Proclamation - Waterfowl, common snipe and coot — 2002-03 proclamation - Upland Game Proclamation — 2003-04 proclamation — 2002-03 proclamation - Turkey Addendum to the Upland Game Proclamation — 2003 addendum Black Bear Proclamation — 2003 proclamation — 2002 proclamation Cougar Proclamation — 2002 proclamation Furbearer Proclamation - Taking, possessing, selling, purchasing & disposing	Y	Y	N	N	Y	Y	N	N	N	V	Y	Y
	National Wildlife Refuge System Administration Act of 1966 Wilderness Act of 1964 http://policy.fws.gov/029fw4.html May 25, 1900, Lacey Act March 4, 1913, the Federal Migratory Bird Law (Weeks-McLean Law) December 8, 1916, the Migratory Bird Treaty with Great Britain (for Canada) July 3, 1918, the Migratory Bird Treaty Act May 20, 1926, the Black Bass Act March 16, 1934, the Migratory Bird Hunting Stamp Act March 15, 1937, the Migratory Bird Treaty with Mexico	— 2002-03 proclamation: Falconry Proclamation — 2002-07 proclamation Collection, Importation & Possession of Amphibians & Reptiles Collection, Importation & Possession of zoological animals												

Nature Table

Appendix

	June 8, 1940, Bald Eagle Protection Act became law. November 5, 1956, the Fish and Wildlife Service was reorganized into the United States Fish and Wildlife Service June 3, 1970, the Endangered Species Conservation Act of 1969 November 18, 1971, the Airborne Hunting Act March 4, 1972, a Migratory Bird Treaty with Japan March 10, 1972, the Migratory Bird Treaty with Mexico was amended October 21, 1972, the Marine Mammal Protection Act of 1972 December 28, 1973, the Endangered Species Act of 1973 On July 1, 1974, the Bureau of Sport Fisheries and Wildlife became the U.S. Fish and Wildlife Service. July 1, 1975, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) November 19, 1976, a Migratory Bird Treaty with the U.S.S.R. was signed													
	November 16, 1981, Black Bass and Lacey Acts were repealed and replaced by the Lacey Act Amendments of 1981. December 31, 1982, the Fish and Wildlife Improvement Act of 1978 (16 USC 742l) November 7, 1988, the African Elephant Conservation Act October 23, 1992, the Wild Bird Conservation Act of 1992 September, 1994, the Marine Mammal													
Bird Watching														
Authorized Entrance Hiking (permitted)	Organic Act; MUSY	Selected trailhead permits and wilderness permits H_WP_SPEEDO_VW.xls	Y	N	Y	N	N	?	N	N	N	N	N	
General Recreation	Organic Act; MUSY	None	N	N	N	N	N	N	N	N	N	N	Y	
OHV access	Regulation	None	N	N	N	N	N	N	N	N	N	Y	Y	

A2

People Table

SOCIAL LINKAGE	DATA on PEOPLE in the LINKAGES in the USE CATEGORY			Information on People the Contained in the Database						Comments (Comments on the accessibility and usefulness of the database)	
	Database Information			Type of User (Y/N)	Name (Y/N)	Address (Y/N)	Other contact info. (Y/N)	Location (Y/N/V)	Amt. resource specified (Y/N/V)		Amt pd. (Y/N)
USE											
Ownership Water Rights	Water Right Information under Queries http://nrrwt1.nr.state.ut.us/	Utah Division of Water Rights		Y	Y	Y	Y	Y	Y	N	This data is access through the Division of Water Rights. To make inquiries one must know the Section, Range and Township information or a point with in a finite number of feet of the Section , Range and Township for the Point of Diversion or Point of Use. Records based on the types of extraction, size of operation and a few other parameters
Mineral Rights	Bureau of Land Management Land and Mineral Records-LR2000 system http://www.blm.gov/lr2000/ The Federal Land Patent Records website http://www.glorerecords.blm.gov/ contains information on patents issued before 1982.	- BLM Utah State Office, Division of Lands and Minerals, Branch of Minerals Adjudication - Utah Division of Oil, Gas, and Mining (UDOGM)		Y	Y	Y	Y	Y	Y	Y	
Proprietary Powerline	* Relational data likely Infra: Special Uses (II_SU_Fees_V) *	USFS		Y	Y	Y	N	Y	NA	Y	Specifies amount of acres used (basis for fee?)
Outfitter / Guide	Infra: Special Uses (II_SU_Fees_V) *	USFS		Y	Y	Y	V	V	N	Y	0.1 to 150,000 acres ascribed to use, these are extremes most are in Data of INFRA shows linkages of this use directly and relationally to permit files
Recreation Residence	Infra: Special Uses (II_SU_Fees_V) *	USFS		Y	Y	Y	V	Y	NA	Y	
Claim Grazing	* Relational data likely Infra: Infra Projects-Range Permits (II_RGE_PERMITS-V) *	USFS		Y	Y	Y	Y	Y	Y	Y	Permits for grazing are data rich. INFRA has a number of relational files with information, histories, and other socially significant information tied directly to people and their links to the forest.

Authorized Use Products Removal	* Relational data likely Infra: Timber (TIM_RQ_ PERMITS_V) *	USFS	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Covers removal of many different products, such as firewood, posts and poles, ornamentals, seedlings, seed gathering, ceremonial use, also covers commercial and personal use. Excellent data source but cannot link directly to land. Licenses are issued by the State of Utah DWR and with few exceptions are not for exact locations. There are a few permits in private or special public land sites where use data is available. Each site would need to be canvassed or owners with hunting permits to issue would need to be contacted separately.
Hunting	Utah Division of Wildlife Hunting Permit records	DWR	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Excellent data source but cannot link directly to land. Licenses are issued by the State of Utah DWR and with few exceptions are not for exact locations. There are a few permits in private or special public land sites where use data is available. Each site would need to be canvassed or owners with hunting permits to issue would need to be contacted separately.
Authorized Entrance Hiking (permitted)	* Relational data likely Infra: Recreation Use (II_WP_ SPEEDO_VW) *	USFS	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Users need permits to use some trails particularly in the wilderness areas; compliance is uncertain. NVUM provides information on most types of recreational activities on the forest; representative survey gives fair but generalized information nationally and at the nine Forest Service regions, as well as at the Forest levels. Fish Lake and Manti LaSal are represented on the report list. Error rate is a concern, and likely is a result of low n and lack of systemization and consistent timing at locations chosen for survey. There is a large variability in use types and head count at any given location over time.
General Recreation	Recreation Survey: NVUM (National Visitor Use Monitoring) Survey	USFS http://www.fs.fed.us/recreation/programs/nvum/	Y	N	N	N	Y	Y	Y	Y	Y	Y	Contains information on OHV, ATV and Motorcycle Licenses but there are no direct links to the forest. Use of the forest is evident in the development of "wildcat" trails and the general deterioration of the existing resource but with out consistent data gathering or permits to use for forest access specific data is lacking.
OHV Licence	Driving License (Standard Motorcycle and ATV)	Utah DMV	Y	Y	Y	Y	N	N	N	N	N	N	Contains information on OHV, ATV and Motorcycle Licenses but there are no direct links to the forest. Use of the forest is evident in the development of "wildcat" trails and the general deterioration of the existing resource but with out consistent data gathering or permits to use for forest access specific data is lacking.

A2